

# COST *and* MANAGEMENT

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COST ACCOUNTANTS & INDUSTRIAL ENGINEERS

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at 25 cents each.

# EDITORIAL

## Circus Tactics Not Necessary

The Sixth War Loan has gone over the top with a bang and few ever doubted otherwise. But, there is a widespread feeling that the circus tactics adopted in this and previous loans in order to keep the subscribing public at fever heat, are not necessary.

The average man in the street argues that it costs considerable money to stage all the Victory Loan Shows and to have the various Hollywood Stars flying around the country presenting flags to those companies which have "gone over the top," but there is more to it than that.

It is true that we are so saturated with U.S. advertising tactics that nothing short of something of a superman type will drag us out of our lethargy and bring to many of us the realization that here is something really urgent. At least that is what we are told but if it is so then we are not a patriotic nation no matter what the Victory Loan committees say officially.

To any thinking man or woman, it should not be necessary to force down our throats the urgency of raising sufficient funds by Victory Loans in order to prosecute the war to its final conclusion but we are afraid that something is necessary. We are not however, convinced that the circus tactics previously referred to present the correct answer.

Far too many people subscribe to the various war loans under something approaching compulsion and then, as soon as the bond is paid for, they sell it.

This practice is far more prevalent than is actually supposed and the same thing applies to War Savings Certificates.

The idea of allowing "George to do it" has certainly not died out with the war and many people earning far more than ever they did, will have little if anything to show when war ceases except whatever compulsory savings stand to their credit. And yet, these will be the people who will holler the loudest if they are out of employment for a week or two.

It seems to many of us that it is up to everyone to have a stake in the country and we believe that far more attention should be paid to educating the average man and woman in this country to the actual needs of the war and the necessity for the complete support both financially and otherwise, to the war effort.

Far too much "tripe" is handed to us concerning the war effort and even the conduct of the war and we are expected to be really patriotic without knowing really why.

We know full well that many people would not subscribe one cent to the war effort unless they were more or less compelled to do so but there is little point in more or less shaming such people into assisting by their bond purchases if these same people are allowed to cash their bonds as soon as they are paid for.

## ACROSS THE SECRETARY'S DESK

We believe that this country has done a good job of financing this war but the responsibility is not spread out as much as it should be.

The only way to insure that each and every person plays his just part in financing the war effort is by educating everyone to the extent that each will wish to have as large a financial stake in the country as earnings will permit.

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### ANNUAL MEETING

Activities in connection with the forthcoming Annual Meeting will be as follows:

10.00 P.M. Trip to Ste. Anne de Beaupre and Montmorency Falls. (Members and their wives).

#### FRIDAY, JUNE 30th

2.00 P.M. Meeting of the Dominion Board

6.00 P.M. Annual Dinner

7.30 P.M. Annual Meeting

10.00 P.M. Reception to Visitors.

#### SATURDAY, JULY 1st

9.30 P.M. Meeting of New Dominion Board

1.00 P.M. Golf

2.00 P.M. Sightseeing trip around Old Quebec

6.00 P.M. Dinner at Golf Club

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## Across the Secretary's Desk

Another season has just about concluded and, all things considered, we have every reason to be proud of the results. Generally speaking, our various Chapter activities have been most excellent and in some cases have exceeded our expectations.

Our membership has increased very materially, two new Chapters have been formed, possibly three by the time this is read, Alberta has secured incorporation by Private Bill and our Vancouver Chapter has been reorganized and is now "on its way."

The writer has attended many Chapter meetings during the season and has once more been struck by the great contribution which is being made to our cause by the officers and directors of the Chapters. Despite shortage of staff and extra duties in most cases, due to war activities, these gentlemen have labored unceasingly in our case and we owe them a deep debt of gratitude.

There are others, who are just ordinary members but who make a real contribution to our work by their constant attendance at meetings and we should not forget their value.

One bright feature of the year just closed has been the fact that many of our members have gone out of their way to assist by addressing meetings. Norman Terry and Nick Abramsen, Vancouver; Alex Blanchard, Harry Clayton and Max Coutts, Toronto; Mel Walker, Kitchener; Alex Howey and Harold Bricker, Hamilton; Nelson Allan, Bay of Quinte; Jack Benson

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and Frank Wood of Ottawa to mention a few. And then, of course, we must not forget Harold Wright and Hal. Hetherington who have again done a fine job in this regard.

Yes, it has been a good season but there is still much to do and we can all help.

Let us have more of this interchange of speakers between Chapters, even better attended Chapter meetings and more and more new members. Remember we must continue to move forward in every respect. There cannot be any standing still. Hope to see you at the Annual Meeting.

R. D.

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## New Members

### Bay of Quinte Chapter.

G. Soules, Universal Moulded Produces Ltd., Belleville.

### London Chapter.

W. J. McKay, The Weatherhead Co. of Canada Ltd., St. Thomas.

### Kitchener Chapter.

T. C. McLeod, International Malleable Iron Co. Ltd., Guelph.

### Kitchener Chapter

R. Holfeld, Babcock-Wilcox & Goldie-McCulloch, Ltd., Galt.

### Toronto Chapter

R. C. Spencer, Burt Business Forms Ltd., Toronto.

S. Casey Wood, Jr., International Business Machines Co., Ltd., Toronto

K. Moeser, International Business Machines Co., Ltd., Toronto.

A. M. Thornhill, Treasury-Cost Section, Toronto.

E. H. Durnan, Treasury-Cost Section, Toronto.

### Ottawa Chapter

D. B. Grant, Treasury-Cost Section, Ottawa.

W. D. McAllister, Treasury-Cost Section, Ottawa.

### Non-Resident

E. B. L. Tomlinson, Falmouth, B.W.I.

A. H. Black, The Wm. Kennedy & Sons Ltd., Owen Sound, Ontario.

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## Death of "Doc" McLeod

It is with sincere regret that we learn of the death of S.C. McLeod, Secretary of the N.A.C.A., which took place at his home on April 15th, last, at the age of 59. All those who have come in contact with this kindly native of Ontario and have knowledge of his unlimited dry humor as well as those who know of his undoubted worth to the N.A.C.A. will regret his passing.

For a quarter of a century "Doc" McLeod served as Secretary and guiding spirit of the N.A.C.A. and in his passing has left a void which will be hard to fill.

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## Chapter Notes

### **Hamilton Chapter.**

The closing meeting of the Hamilton Chapter was held in the Mural Room, Royal Connaught Hotel, on Friday, April 29th, when the guest speaker was our Dominion President, Mr. H. M. Hetherington, R.I.A. Mr. Hetherington spoke on "The Role of the Industrial and Cost Accountant in Post-War Planning" and the talk was exceptionally well received. There was a fair attendance and a good discussion period at the close.

Mr. Hetherington was introduced by Harold Wright and a hearty vote of thanks was moved by Bob Menary, the newly elected Chairman. George Greenhough is the new Vice-Chairman and Harold Gallagher was elected Secretary-Treasurer.

### **Kitchener Chapter.**

The final meeting for the season of the Kitchener Chapter will be held at Fergus on Wednesday, May 17th, and it promises to be the best meeting in the history of the Chapter. This is saying something because no Chapter in Canada has a record to equal that of the Kitchener Chapter during the present season from a point of view of attendance.

The speaker will be Mr. J. G. Glassco, C. A., Comptroller, DeHavilland Aircraft of Canada, Ltd.

### **Windsor Chapter.**

The April meeting of the Windsor Chapter which was a joint meeting with the Detroit Chapter, N.A.C.A., brought together over 200 members and guests to hear Mr. L. W. "Larry" Downie of Detroit. This tops the previous attendance record for the Windsor Chapter and the border city boys dispute the claim of the Kitchener Chapter for attendance records.

### **Bay of Quinte Chapter.**

The April meeting of the Chapter took the form of an Accounting Quiz and while the meeting was not as well attended as most of those during the present season, it was, nevertheless, a most enjoyable meeting.

### **Ottawa Chapter.**

The Accounting Quiz previously mentioned was to have been used by the Ottawa Chapter for its closing meeting on May 3rd, but instead J. S. Benson spoke on "Systematizing." While the attendance was not very large, the meeting was thoroughly enjoyed. The new Directors were elected at this meeting and from now on big things are expected of this Chapter.

### **Calgary Chapter.**

The next meeting of the Calgary Chapter is scheduled to be held on Friday, May 12th. No details are to hand so far as to the speaker and topic.

### **The Society of Industrial Accountants of Alberta.**

The first General Meeting of this newly organized Provincial Society is scheduled to be held on May 20th at the MacDonald Hotel, Edmonton, for the following purposes:

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1. To receive and consider the report of the Directors on the Incorporation of the Society.
2. To approve By-laws governing the Society.
3. To elect Councillors.
4. To appoint Auditors.
5. To transact such other business as may properly be brought before the meeting.

### Vancouver Chapter.

The April meeting of the Vancouver Chapter was a pronounced success with a good attendance and a fine discussion period. The speaker was Norman Terry, C.G.A., and his topic was "Cost Accounting Problems". Mr. Terry's talk appears in the current issue of "Cost and Management". The next meeting is scheduled for Tuesday, May 9th, with Mr. N. Abramson as speaker and will speak on "Controlling Costs with Proper Cost Records."

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## Personal Notes

Sympathy of all members will go out to Major R. S. "Bob" Watson, C.A., a member of the Hamilton Chapter, whose son has been posted as missing Overseas.

Mr. H. K. Wilkins of Silverwood's, Ltd., Kitchener, has been transferred by his Company to St. Catharines and will become a member of the Niagara Chapter. Mr. W. Temple will take his place as a member of the Kitchener Chapter.

Roy Page of the Toronto Chapter has secured an appointment on the staff of the Cockshutt Plough Co. Ltd., Brantford, and his membership will be transferred to the Hamilton Chapter as of May 1st.

A.H.S. Smith of the Kitchener Chapter has joined the Armed Forces.

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## A Cost Accountant's Viewpoint in Accounting for Fully Depreciated Assets

An Address Before Ottawa Chapter, March 28, 1944, by N. Allan, R.I.A.

Depreciation is a phase of accounting which has assumed, during recent years, increasing importance as an element of cost, and to many, this transformation has been taking place with scarcely any notice being taken of it or recognition given to it. As a result, accounting for depreciation has changed very little in the last twenty years with very little consideration having been given to changing conditions, which have been quite pronounced in recent years. For this reason, many inaccuracies have become quite apparent at the present time when many firms are finding more and more of their assets being fully depreciated. I don't suppose there is much that I could say to you on the subject of depreciation that would be new to you, but I thought it might be well for all of us to consider

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some of the short-comings of the different methods of accounting for depreciation, particularly in the light of present day conditions, and what we may anticipate in the near future.

In order that we may better appreciate the transition that has taken place, let us go back in our minds to the time when many of the present day fundamental principles of accounting were first established—of a time when men were taught to work with their hands. In those days, labour contributed probably seventy to eighty per cent of the cost. As man progressed from the craft guilds to the machine age, with centralized production, labour costs were replaced by a cost of a different character—depreciation. This transformation has been accelerated and its magnitude has become greater as industry changed from hand machines to automatic machines, and as more intricate machinery came into use to satisfy the demands for more exacting work.

In order that you may have full appreciation of the importance of having proper control of capitalized assets and resulting depreciation charges, I would like to give you a few figures prepared by Mr. A. B. Hossack, Vice-President of the American Appraisal Company, which appeared in the 1936 N.A.C.A. Year Book. These figures are taken from published balance sheets and profit and loss statements of ten companies manufacturing a fairly wide range of products. The figures given are in two groups, the yearly average for the years 1925 to 1929 and the yearly average for the years 1930 to 1935.

### YEARLY AVERAGES 1925—1929

Kind of Company	% Net Property a/c to Total Assets	% Dep. to Gross Assets	% to Sales	% to Net Income
Heavy Machinery M'fr. ....	51.2	1.6	2.0	20.3
Meat Packing .....	49.3		1.0	96.7
Oil Company .....	49.1	8.2	6.6	96.0
Steel Producer .....	68.6	2.0	4.4	59.1
Steel Producer .....	68.7	2.3	3.7	43.6
Tractor M'fr .....	43.8	4.9	2.5	11.1
Automobile M'fr .....	31.0	5.5	2.2	12.3
Automobile M'fr .....	44.9	8.3	1.8	25.5
Rubber Company .....	40.4	9.1	3.8	68.0
Food Products .....	61.4	6.5	3.2	48.7
Averages .....	50.2	5.4	3.1	48.1

### YEARLY AVERAGE 1930—1935

Heavy Machinery M'fr .....	40.4	1.7	2.9	
Meat Packing .....	48.9	3.0	1.1	
Oil Company .....	60.8	6.0	10.5	265.6
Steel Producer .....	74.8	1.9	8.1	139.2
Steel Producer .....	75.0	2.0	6.8	
Tractor M'fr .....	39.8	6.8	6.7	57.0
Automobile M'fr .....	30.1	6.0	4.4	35.5
Automobile M'fr .....	42.2	5.4	5.8	

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Rubber Company .....	43.1	6.2	6.8	212.0
Food Products .....	56.1	5.5	3.3	87.3
Averages .....	51.1	4.5	5.6	132.8

I wish to point out that the total assets have only been reduced by reserves applicable to the capital assets. I think you will agree that the ten companies shown are fairly representative of industry as a whole. If we take the average of the percentages given, we find the capital assets are approximately half of the total assets. Therefore, when we talk of accounting for capital assets, we are talking of the accounting for half the companies' total assets. I am sorry that I do not have the ratio of depreciation to total cost, but it is rather significant that this item of expense averages 3.1% of sales during the period from 1925 to 1929, while during the depression this average was 5.6%.

The ratio of depreciation to net income is a ratio to net income after depreciation has been deducted. The average of this percentage is 48.1% for the period of 1925 to 1929 and an average of 132% during the depression.

I think the ratios should be sufficient to indicate the importance of having proper control over depreciation, particularly since this item of cost continues to increase in proportion to the total. Let me point out that depreciation as an element of cost is increasing not only because the proportion of assets subject to wear and tear are increasing, but because the factor of obsolescence is playing a greater part than ever before.

Let us consider for a moment some of the results due to the laxity which has existed in accounting for depreciation. It has been found in many cases that the individual items comprising the whole assets have at no time been tied in with the control accounts, with the result that depreciation continues to be written off long after the asset has fully depreciated or an assets that no longer exist. More frequently, however, depreciation has been understated and no check has been made on the rates used with the possible result that dividends would be paid out of the surplus rather than earned income. There is also the probable result that there will be realized loss on the asset at time of retirement, which loss cannot be included for income tax purposes. On the other hand, however, if depreciation is overstated, costs are high with the resultant difficulty in meeting competition.

Before we enter into a discussion of the principles of accounting for depreciation, there are certain premises which should be established. In considering a method to be followed in writing off depreciation, the purpose for which the write-off is to be used is a determining factor—for instance, the various purposes which usually occur are:

1. Balance sheet valuation of depreciable assets for sale or credit purposes.
2. Determination of profits available for dividends.
3. Determination subject to income tax.
4. Cost accounting.

For the purposes of our discussion, we will confine our remarks to the methods best suited for purposes of cost accounting—in other words,



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we are not endeavouring to determine the method of writing off depreciation to reflect the actual amount of deterioration and obsolescence at the balance sheet for credit or forced sale, but rather to allocate fairly the cost of an asset over certain accounting periods on the basis of a going concern. Nor are we concerned with the depreciation that will be allowed for income tax purposes, but rather to arrive at the proper allocation of the cost of an asset to a unit of production.

I suppose we should also establish some kind of definition of depreciation. I believe we all understand generally what is meant by the term, but I would like to state for our purposes, depreciation is an expense estimate to cover the gradual exhaustion, wear and tear of property, and to allow for ordinary obsolescence. When I speak of obsolescence, I am, of course, referring to that devaluation of an asset arising from the normal improvements in efficiency through design and engineering of subsequent assets performing similar functions. Such deterioration can, for the most part, be predicated on the bases of past experiences and of new developments. Of course, there is also unexpected types of obsolescence which can only be accounted for as and when they occur.

There are various methods for determining annual depreciation.

1. Straight line.
2. Production unit.
3. Appraisal.
4. Reducing balance.
5. Sinking fund.
6. Annuity.
7. Retirement expense.

I do not propose to dwell at any length on the fine points of these various methods for determining annual depreciation except to mention some of the merits and demerits of those commonly used.

The production unit method is used to spread the net cost of a fixed asset equally over its expectancy of life in terms of units of production, in other words, the net cost of the asset divided by the service life in units of production equals the portion of the net cost allocated to one unit of production. Except for process industries, it does not have very practical application.

In the appraisal method, the value of the assets are appraised at the beginning of a period, to which value, is added the purchase value of fixed assets and from this the appraised value at the end of the period and the difference is the amount to be written off for the period. This method is not favoured by accountants generally since the value appraised is determined largely by market conditions at the time of appraisal. Generally speaking, when business is plentiful and production is above normal, the value of the assets are at the same time enhanced, and, therefore, the amount is scarce and production is below normal, the value of the assets in terms of market conditions would be low and the amount of the write-off would be high. Therefore, the cost of depreciation during periods of low production would be high and during periods of increased production the expense would be low, which, of course, is contrary to actual facts.

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In the reducing balance method the larger portion of depreciation is taken into expense during the early life of the asset, and the expense is decreased with the increase in the length of service and presumably its lower earning capacity.

The so-called straight line or fixed percentage of depreciation spreads the net cost of a fixed asset in equal installments over its expectancy of life, in other words, the net cost of the asset divided by the estimated number of years of usefulness equals the portion of that cost allocated to one year. This method is probably the simplest, but its very simplicity causes much of the difficulties experienced by many as a result of the continued increase of fully depreciated assets which continue to form a part of the earning capacity of the company.

Notwithstanding, however, the fixed percentage is probably the most suitable under most conditions, taking everything into consideration, if it is kept under proper control and the rate revised periodically. In any event, the method which is best to use depends upon the individual application, since it is quite obvious that one method which may be particularly adaptable to a certain type of business would not fit in with another type. Sometimes I wonder if all the trouble of providing proper rates of depreciation is worthwhile when you consider that there is probably only one Company in a hundred who use the information for the purpose for which it was intended, namely, to set up adequate provision in some form of liquid asset that will be available for replacement of the item for which the provision was made when it has reached the termination of its usefulness.

Let us now consider the requirements for adequate control of prime assets and proper depreciation. There must be some form of record that a certain unit was acquired for a certain number of dollars at a certain time. That record must also indicate some means by which it can be identified with the unit of which it purports to be a record. It must also identify itself with the controlling account in the general books and must lend itself to periodic checking of depreciation rates and verification of the continuing existence and use of a property. There are those who state that item property accounting involves too much detail and is too costly. However, let us remember that with every unit of production we are selling a part of our plant and equipment just the same as we are selling a portion of material and labour. Therefore, my feeling is that the same care should be exercised in handling charges on account of depreciation as we do for other items of cost, particularly when depreciation represents such a large proportion of the total cost.

I need not enumerate the numerous advantages of item control of plant assets, but I would like to emphasize one or two points. As I mentioned previously, depreciation continues to supplement labour as an element of cost and it must become apparent to many that the time is rapidly approaching when we must adopt some method other than direct labour as a basis for apportioning overhead of which depreciation forms a part. Unit cost centres or machine hour rates are becoming increasingly important as a medium of allocating factory burden and the only manner in which de-

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preciation can be apportioned accurately is by the use of item control of plant assets.

Let us consider for a moment or two a method of control by which individual assets can be tied in with the general books and still give us the information which we require for costing purposes.

In discussing a suitable control of plant assets, let us start at the beginning, and we will assume that sound values have been established for each building, equipment, fixtures, etc. You have the location of machines and their accessories by costing centres, and the location of the equipment. A careful estimate is made of the remaining years of life and depreciation rates on individual items can then be established.

The assets are then grouped under a number of ledger headings in the ledger such as buildings, machinery, equipment, fixtures, office furniture, etc. If it is so desired, these major headings can be further subdivided into groups of common equipment. For instance, the machinery equipment asset accounts include such items as motors, foundations, piping, etc.

Most of this equipment is used in conjunction with some major unit, and, therefore, the individual records should incorporate such information as will enable one to tie up the appurtenances with the major unit. Probably the simplest way to do this is by means of code numbers. For instance, the first figure would identify the major ledger control account, the next two figures would identify the breakdown. Therefore, by sorting these records by the first number, you will then be able to tie in the detail record with the general ledger.

It is also necessary that the depreciation on the individual items must be properly allocated if you are going to fit the control in with the costing system and budget system. This also can be done by means of proper codes, the first figure representing the department, the next two figures identifying the costing centre within the department, and the last figure identifying the machine located within the costing centre. That last figure is painted on the machine or piece of equipment so that positive identification can be made.

There are many companies which make absolutely no attempt to verify in any way year after year whether there is any relationship between the actual property and the accounts. No verification made that the property was actually installed or whether there were additional expenditures other than the cost of the property unit itself. Very often no report is made to the Accounting Department if equipment is removed, and only by periodic verification of the property accounts can such discrepancies be ascertained.

It has been the method in the past and still prevails in many cases that average rates of depreciation are used for the various property accounts. Such rates of depreciation are being used with some degree of success by many who make an honest endeavour to accurately determine proper average rates and to account for all additions and retirements. To use this method successfully, it is necessary to base the average rates on weighted averages of life expectancy, taking into consideration maintenance

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and repair charges, and the rates, of course, are applied to the investment. In order that these rates may remain reasonably accurate, it is necessary to give effect to new assets which are added and retirements which are made.

You can readily see that, if this method is to be carried out properly, it is not very applicable under most conditions. In the majority of cases, average rates are dictated by management in accordance with what they feel costs can stand, or arbitrary percentages are used because they happen to be the rates which are most commonly used for that class of property. Even if an attempt is made to establish proper average rates, these rates, once they are set, are very seldom changed in accordance with the changes in the property which it purports to control. Another objection is that in the modern plant, even among similar types of equipment the variation of the useful life of the individual units presents quite a spread. This, of course, does not lend itself to accurate costing of the units of production.

I believe that, in order to have control over plant assets under conditions which now exist, we must have item control and item rates of depreciation. In setting individual rates for depreciation, I wish to point out that we should strive as much for accuracy as for conservatism. It is the belief among some accountants that depreciation simply means the recovering of the cost of an asset, and the sooner this is accomplished the better. I think you will agree that it is more desirable from the standpoint that it is the purpose of an accountant to present the facts shorn of any personal desire to be over conservative. In establishing annual rates of depreciation, I don't think it is necessary to elaborate upon the various methods used to determine the rate of depreciation as there is a wealth of data and information available in this connection. Suffice it to say, however, that proper consideration should be given to the obsolescent factor.

However, no matter how careful one might be in setting the depreciation rates, it is very rare that such rates will hold true throughout the life of the asset. It is, therefore, necessary that these rates should be checked periodically and adjusted wherever necessary.

I might mention at this time that a by-product of this periodic check is the revision on insurance premium coverage. In the majority of plants, and particularly those concerns who are not large enough to employ one person to be responsible for insurance, continue to carry policies with the same coverage year after year and the result is that insurance is being paid to cover assets at a greater valuation than is necessary. I do not wish to infer that the residual value of the assets as shown in the books should be used as a basis for insurance coverage, but I do feel that the amount of depreciation which has been written off should serve as an indication of the appraised value in case of loss.

The monthly depreciation charge for cost purposes can be ascertained by making a tabulation of the total annual charges at the beginning of the period. In obtaining these charges, effect should be given to estimated removals, additions, and fully depreciated assets. This amount can then be divided by the number of costing periods, and the result is the basis of a standard journal entry each month. At the end of the year, it is simple matter to make any further adjustments which were not fore-

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seen at the beginning of the years. In this way, any assets which will become fully depreciated during the period will be spotted and therefore the danger of over accrual has been diminished. One of the points which I think we should take note of at this time is that, if any appropriation is being considered to cover the cost of new equipment, you are now in a position to advise management if there will be any substantial capital loss, so that proper consideration can be given to the loss before the transaction takes place. It is much better to be aware of such situations before they occur rather than after.

Let us now assume that we have control of all plant assets, and that we know which items are fully depreciated but continue to form part of the earning capacity of the company. I have endeavoured to show that the means of item control and periodic revision of depreciation rates can minimize fully depreciated assets. However, that does not answer the situation in which many manufacturers find themselves to-day as a result of accelerated depreciation and special depreciation. Many concerns were very anxious to establish high rates of depreciation more for the reason of writing off as much of their assets against excess profits tax as it was the result of greater wear and tear on the property. As a result, these firms will enter into competitive peace-time production with a large proportion of their productive assets having been fully depreciated.

This is a problem which I think cost accountants should consider very carefully. The normal procedure would be to eliminate from manufacturing cost the depreciation on those assets which have become fully depreciated. The unit cost of the product will then be reduced and an abnormally large profit will be reflected unless the selling prices are predicated on costs in which case sales are being made at a lower price than would normally obtain. As a result, under the first premise, comparative gross profit ratios are upset. On the second premise, you have production costs which are not normal and, therefore, are misleading.

One way which I would like to suggest as a method of overcoming such situations would be to continue to charge into cost the normal depreciation of those assets which are fully depreciated, and, instead of crediting the reserve account, throw the credit into earned surplus. In this way, your costs will be on a comparative basis, and your ratio of cost of sales to sales will remain reasonably constant.

No doubt there will be many objections to such a method being adopted, one being that the true facts are not being recorded. I feel that it is the duty of the accountant or cost accountant to keep management aware of any abnormal situation so that their sales policies are formulated knowing all the facts. If they are presented with costs which are abnormally low by the reasonable fact that no depreciation is included, they may feel that they can enter into long term sales programs thinking that they are producing more economically than competitors.

On the other hand, if management is presented with the normal cost, but they feel that it is necessary to reduce selling prices to meet competition, they can do so knowing that they may be infringing upon normal costs, and also that prices could be reduced, if necessary, to actual cost

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without throwing a loss into current operations. At the same time, they also know that the latter conditions would not prevail when those assets which are fully depreciated must be replaced and depreciation must again be recognized as a part of cost.

This is a problem which has not been of much importance in the past, as by and large, fully depreciated assets have formed a comparatively small percentage of the total assets. However, we are now entering a period when such assets will form a fairly large proportion of the earning capacity of the company, and more than ever before, depreciation forms a larger percentage of the cost in production. Therefore, I don't think that we should kid ourselves by presenting abnormally low costs simply because we continue to follow the practices which we have followed before.

To use a concrete illustration, let us assume that we have an automatic turret lathe, which had a purchase value of \$12,000.00, but by reason of accelerated or special depreciation, this asset has now become fully depreciated. Assuming the normal life of such an asset to be ten years, the annual depreciation on this item would be \$1,200.00 or, reduced to depreciation cost per hour, would be fifty cents. The normal labour cost for an operator on this type of machine would be probably fifty cents per hour. If depreciation on this machine is removed from the operating costs, you can readily see that the cost of the article produced by this machine will be reduced by 100 per cent of the labour cost. In other words, if the cost of operating this machine under normal conditions were \$2.25 per hour including direct overhead, the cost with depreciation eliminated would be \$1.75 or a reduction of 22.2 per cent. I think you will agree that this is rather a significant factor and should not be discarded as being unimportant.

As I stated at the beginning of my address, I do not expect that I have given you anything that you have not known before, but I trust that I have brought before your minds a problem which has been with us, but which we have scarcely recognized, and if I have provoked some thought along this line our time will not have been spent in vain.

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## Cost Accounting Problems

As Presented by Norman Terry, C.G.A., Before Vancouver Chapter of the Canadian Society of Cost Accountants, April 12, 1944.

Cost Accounting is such an expansive subject that it is difficult to begin to adequately introduce it in one evening or cover it in a dozen lectures, so I can only hope to touch the fringe of the subject to-night and trust I may raise questions in your minds that will cause all sincere students of Cost Accounting to personally search out solutions to their own satisfaction whether they agree with my suggestions or not.

In examinations you may be called upon to define Cost Accounting or compare it with other types of accounting, which suggests not only that you search for definitions of costing experts, but that by analysing such, you arrive at your own personal definition of the Science of Cost Account-

## COST ACCOUNTING PROBLEMS

ing. One such definition might be "a system of Accounting that deals with the recording in detail of transactions arising from, and having to do with, the manufacture of the product, and the summarizing of these details in such a manner as to be controlled by the financial books." You could each give me a better definition, but that's a start.

In reviewing types of questions asked in Cost Accounting Examinations, it is obvious that certain questions will appear constantly, and presuming these to be the most important, I will concentrate my remarks on types of questions asked repeatedly. While practically every paper includes at least one question presenting the student with certain facts and figures and the request to draw up a Manufacturing and Trading statement, etc., with specific cost elements, etc., time, hardly permits the working of such a problem at this time.

Other questions ask for a comparison with financial accounting, methods of overhead distribution, the explanation of three of four types of costs, wage systems, inventory control and quite often to explain in detail some complete cost system.

I will therefore concentrate on these problems.

**Financial or General accounting** is usually understood to deal exclusively with financial records and transactions, and recognizes the product only in its relation to money values. Cost finding or Factory costs, however, deal with the product as accumulated units of production; considers the elements of costs in their relation to the product, and determines the cost per unit by comparing the total of the elements of costs with the volume of units produced.

Accounting deals with totals and then determines proportions of the elements, cost finding begins with the fundamental elements and finally determines the totals.

Financial Accounting usually includes the recording of assets, liabilities, and general administration matters which conclude with Profit and Loss accounts, while the Cost Accounting records may function as a subsidiary or section of the accounting system, recording, proving and balancing a multiple of factors of production, the totals of which may or may not be used in the financial records.

As an example, one factory might operate without a cost system and be satisfied with the usual financial accounting for the recording of its transactions. The Balance Sheet accounts of Fixed Assets and Liabilities would remain practically dormant. All purchases of raw materials might be charged to a such named account and credited to Accounts Payable; Sales credited to a so named account and debited to Accounts Receivable. Operating Expense account would be charged with all elements of production, such as wages, depreciation, insurance and miscellaneous charges. At the end of a given period the balances of such accounts, together with adjustments of inventories, would be able to give some form of Manufacturing and Trading statement, but totals would be used throughout and details of such totals, without an operating cost system "tied in" to the financial accounting records would be impossible.

Cost Accounting should be so systematized to record each item enter-

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ing into the production of the products manufactured, so that details can be easily classified, groups of cost figures quickly assembled, and totals utilized for the figures of the financial records.

### COST SYSTEMS

There are many types of Cost systems and every kind of factory has peculiar problems which makes it essential quite frequently to adopt changes in their system from time to time.

**A Primary Cost System** is the most elementary type of cost system and in a small factory will work very satisfactorily. It provides for the recording of all details of material with proper stock records, all labor used is divided into direct and indirect cost, and the elements of overhead are recorded together with the indirect labor to arrive at periodical overhead costs. Usually the overhead is distributed on the direct labor cost method (on a percentage of direct labor used) and daily, weekly and monthly Costs, work in progress, and inventories can be constantly established.

**Product Cost System** is similar but advances a little to assemble total costs of each class of product made; a furniture factory would separate tables from chairs, etc.

**Departmental Cost System.** A factory may be making one or many products each in a different department of the factory, and find need for recording the cost elements of each department. Each department would be charged with various elements of department costs and credited with its production and thus departmental Profit and Loss established.

**Special Order System** would be necessary in a factory manufacturing articles to special order. Each order would be given a job number and all direct labor used, direct material used, and a portion of overhead used would be charged to each job as completed, each order cost would be determined and with all orders finished the total Factory Costs established.

**Simple Process Cost System.** Where the same product is manufactured in a factory which passes through various processes or stages of manufacture, each process is costed separately until the final stage in the manufacture is reached, then the sum of all the process costs equal the final or total cost.

**Complex Process Costs.** Similar to foregoing Cost where various types of the same product is being manufactured and passes through a number of processes or of departments. A system of subdividing departmental Overhead charges is necessary so that the cost of each process for each class or size of goods being manufactured, can be established readily and accurately.

**Production Centre Method.** Involves predetermined conditions, method and time of performing definite operations. Time clocks and stop watches may be used at a set production centre when new ideas of manufacturing are tried and tested for efficiency and quality. Then from the basis of such results, the routing of certain materials and the schedules of manufacturing performance is standardized for future manufacturing and Standard or Perfect Costs established.

There are, of course, numerous other systems set up to suit varying conditions but the fundamental objective is ever present to break down



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into as small units as possible individual costs be it pounds, units, yards, gallons, etc.

### OVERHEAD

Questions asked repeatedly on examination papers and also in cost systems are for practical methods of overhead or indirect operating expense distribution. There are several common methods and countless special ways used in unusual operations and circumstances.

**Direct Labor Cost Method.** Divide the total amount of Overhead by the total amount of direct labor, for the same period of time and determine the Rate to be used in the distribution.

This is usually the simplest method and in many cases works accurately especially where the operations are such that the Overhead increases and decreases in proportion to the direct labor costs. Should the Direct Labor payroll be \$10,000.00 and the Overhead for the same period \$5,000.00, a 50% rate would be used. Therefore in costing orders, processes, or department costs, the direct labor would be added and by including 50% of that figure for Overhead the cost would be determined; not forgetting material costs if they are to be used also.

**Direct Labor Hours Method (or Productive Hours Method).** Divide the total amount of Overhead by the total number of productive hours, for the same period to determine the Rate Per Hour to be used in distributing the Overhead cost.

This is a similar system but more accurate than the first as often Overhead expenses have little relation with rates of wages paid but power, heat, light, etc., do vary with the number of productive hours. Each operation must account for the productive hours as well as direct labor and material, and by adding the Overhead at the predetermined rate per hour, the total cost is established.

**Direct Labor and Material Rate.** Used when Overhead varies with the labor and material used. The Overhead expense is divided by the total labor and material used in the same period to arrive at the Rate to be used. This rate is then added to individual Labor and Material Costs to arrive at total Costs.

**Machine Hours Method.** In a factory where similar machines of the same capacity are making the same product, such as a shingle mill, the total operating machine hours are used as a basis. The total Overhead cost is divided by the total operating machine hours of the period and this rate is used for distributing Overhead. So that in a plant of five identical machines, each working 200 hours a month or 1,000 operating machine hours, should the Overhead be \$1,000.00, the rate would be \$1.00 per machine hour for Overhead.

**Machine Rate Method.** Where there are various types of machines doing many classes and kinds of operations the method is slightly different. To arrive at the machine rate, it is necessary to determine the floor space used to divide rent, taxes, etc., proportionately; then the machine value, to subdivide depreciation, insurance, etc.; next the type of machine to arrive at its portion of maintenance, repairs, etc., also the H.P. to drive it, to charge power, etc. Such a schedule is quite exhaustive in many

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plants and needs constant revision to keep the machine rate accurate and up to date.

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There are numerous other methods such as by departments, by operation, etc., but the foregoing gives the general idea of the scope open for investigation.

### WAGE SYSTEMS

Another important problem of Cost Accounting in practice or in the examination room, is Wage Systems and their relation to Cost Keeping. In many plants labor is the all important element, so that in compiling labor cost data it is always wise to consider the human element, and while a wage paying system in vogue may be the most cumbersome from an accounting standpoint, it may be the most desirable from the operating or management point of view.

**Day Rate or Hourly Rate** is very commonly used, paying the workman a fixed wage for each hour or day employed irrespective of the amount produced. The greatest criticism against this plan is the removal of the incentive of the workmen to do his best, but in many cases it is impracticable to have any other wage system operate. This method should require the minimum of record-keeping.

**Piece Rate Plan** is a system of wages paid on the basis of the amount produced by the employee. The rate is usually determined by records of past performance or by test performances and care should be taken in setting this basis of remuneration to avoid friction after the plan is in operation. This system should encourage the workman to produce more and naturally provision for supervision or proper examination of work produced to ensure that quality does not suffer should be provided.

**Differential Rate System** is based on the principles of piece rate, but modified by the application of time rate to the work. It provides high wages for perfect work done quickly and low pay for imperfect work and work done slowly. As an example—If a workman receives 50c per piece, and in a day of 8 hours produced an average of 8 pieces, he is told that under the Differential Rate System if he can finish 9 pieces perfectly in the same time his rate will increase to 51c per piece and if 10 pieces, to 52c per piece. On the other hand, if, on account of slow or imperfect work, he completes only 7 pieces, his rate will drop to 49c per piece, etc. The advantages are obvious to both employer, and employee—the efficient worker being rewarded and inefficiency penalized.

**Premium Plan** differs with the piece work paying basis as wages are paid on time rates with regards for time saved in producing. It's appeal to workmen is because it guarantees at least a minimum and rewards increased effort with increased pay. For example: Where a worker produces a certain amount in 8 hours and receives normally 50c per hour, this plan provides that should he produce the same work in 7 hours, he will receive \$4.00 plus a premium for the time saved (say 15c) and still have one more hour to work and receive another hour's pay.

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**Bonus Plan** closely resembles the Premium Plan but uses the sliding scale of pay for every hour worked, based on production. Where the basic rate for an average day's production is 50c per hour for 8 hours and the same is produced in 7 hours, the hourly rate is increased to 55c, and the worker gets \$4.40 instead of \$4.00. Should his time be cut to 6 hours, his rate will increase to 60c and he will receive (8 x 60c) \$4.80, etc.

### INVENTORIES

Inventory Control and the operation of a perpetual inventory system is important not only to the successful operator of any cost system, but is so essential for the success of any manufacturing business, that volumes have been written and will be written on their functions and peculiarities. On the assumption that material is valuable, as cash is valuable, it is obvious that it should be recorded, controlled and protected with equal care.

Someone should be personally responsible for all goods received and used, and his duty should include the responsibility of checking all raw materials purchased for weight, size, count, etc., and prompt reports made of such receipts.

Styles of forms will vary much in every case, but should be independent reports, with no reference to quantities ordered, or shipped from the supply house. Next, facilities for their proper storage being provided, details should be recorded on the perpetual inventory sheets or cards. As orders are received from the factory for material to be used in manufacturing care should be followed, ensuring their prompt delivery to the correct manufacturing department, and that material requisitions are completed and forwarded to the cost Accountant and suitable records made in the inventory control sheets. With perpetual inventories in operation, the stock on hand should be available at all times, ensuring periodical Profit and Loss statements with the minimum of effort.

### PURPOSE

The purpose of a cost finding system is to discover, measure and control favorable and unfavorable cost trends in the manufacturing process. The war now has forced most manufacturing plants on to a 3-shift basis. Civilian products have been curtailed or eliminated. Old processes have undergone rapid transformation. New materials have been introduced. Constant changes, accelerated by wartime production, make cost estimating and control difficult.

Nevertheless, the demands of wartime production have compelled manufacturers to consider cost problems with care. Cost-plus contracts in government work and the demands of renegotiation likewise require reliable costing. These developments, as well as general advantages inherent in cost control, have made industry cost-conscious.

Many pioneer companies have employed cost systems for a decade or more. Cost sheets have assisted them not only in making sound price estimates but in measuring the efficiency of equipment, personnel and departmental operations. Cost records have yielded data leading to the elimination of unproductive operations, inefficient labor, careless supervision

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and excessive overhead. Corrective measures have advanced their industry and produced increased profits.

Many factories employ a costing method known as the job order system. The war has limited some plants to the production of a few special articles, but most make varied items on the specific order of customers. Accounts naturally are kept according to the job numbers of each order.

An increasing number of factories have correlated the job order system with a system known as standard costs. Actual costs are checked with reference to standard costs used as operational controls. These standards are established after laborious time and statistical studies of each operation, the operating capacity of each department and the plant as a whole, and the apportionment of overhead to manufacturing operations. Once the standards have been set, they are used, through variance accounts in the ledger, to flash danger signals on the trend of costs. Accounts are departmentalized so as to localize excessive cost trends and to permit immediate corrective measures.

The details of any cost set-up vary with plant size, structure, output and labor force. Before any cost system is instituted, a careful survey must be made of the nature and peculiarities of a given plant. Cost systems function best when they are "custom made."

In instituting and maintaining a cost system, certain general problems must be faced:—

1. How to departmentalize their plant on a cost basis.
2. How to apportion overhead to the manufacturing departments.
3. What forms to use in checking and recording costs.
4. How to employ estimated cost to check and control the actual costs.

Various approaches to the standard cost system will be found in the cost system of plastic companies. Attempts are made by several to use estimated costs as pre-determined costs; to spot check the efficiency of given operations; to absorb overhead accurately and scientifically; and to use quantity and time studies for checking and controlling costs.

## INSTALLATION

Finally we come to the routine to be followed when installing a cost system which is usually beset with numerous internal problems and complications. The task is far from enjoyable if hostile superintendents and foremen have to be persuaded that the changes suggested of recording and reporting fundamental information incidental to the cost data will not usurp their powers and duties. Their co-operation is essential and it is better to take extra pains to explain what may seem very elementary functions of cost recording details so that information received later will be reliable as the nucleus of the whole system and its reliability and success will depend to a great measure on the accuracy and promptness of receiving details from the various manufacturing departments. The article in a recent issue of the Accountants Digest, "Installation of a Costing System," by N. K. Arnate, gives good advice when it states—"It is essential at the commencement to consider the requirements of the business, to have an intimate knowledge of the factory operations, to collect data which will be useful to the management in the running of the business. It is there-

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fore, advisable first of all to draw up a general report on which the cost system can be planned. Such a report would cover details of the fixed assets, areas, values, dates of depreciation, etc.; a summary of products manufactured with details of raw material used; a plan of the organization and personnel employed, giving names of men holding "key" positions, the process and routine of manufacture from raw material to finished product; a review of the control of all stores and materials; a record of all the plant services; a plan of the present accounting system; a complete record of present forms and statements now used; details of marketing and distributing of the finished and manufactured products.

Unquestionably the author scores well in suggesting an exhaustive study and thorough planning before action; and a review of the foregoing information gives excellent facts upon which to plan a system; but its installation and successful operation, to say nothing of results, will be the acid test. The gradual installation with minimum of changes in the existing system is to be desired, and provision made to prevent a complex system being introduced which is going to require another cost system to record the cost of the cost system.

Usually it is preferable to start with the material and stores. The objective should be to operate a perpetual inventory. All stock of raw material, partly finished goods, standard parts and finished stock, should be systematically stored, numbered, counted, and costed on sheets or cards and a storekeeper appointed in complete charge of the actual goods and supervision of records. All purchases should be controlled by one central authority who would naturally work in co-operation with the storekeeper and the manufacturing department heads. Authority for purchase requisitions as well as all movements of goods in and out of the store should be definitely defined. Copies of purchase orders may or may not be sent to the storekeeper or receiving clerk, depending on the size and type of business, but an independent record of purchased goods as actually received should be reported to the storekeeper, purchasing department and cost departments. Eventually these reports will be checked with copies of purchase orders, then supply company invoices before being authorized for payment to the accounting department or cashier.

Time hardly allows us to discuss further the importance of definite control of stock of all goods; but the cost accountants responsibility will naturally be to keep the detail cost of the perpetual inventory records up to date and showing accurate valuation, so that the assembling of purchase invoice costs plus freight handling, storing, etc., will be essential details to be assembled, then detailed and passed on to the store records. Therefore careful thought in design of forms to be used, requiring minimum of effort and maximum of information, will be the objectives to be attained.

Equally important as material record and control is that of labor and wages. Whether the company is manufacturing shoes, lumber, canned salmon, neon signs or machinery, the recording of all labor on individual workmen's time cards, substantiated with a time clock record, not only has many advantages, but is essential to the installation and operation of a cost recording system. The type and size of business will probably decide

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whether hourly, daily or weekly time cards are to be desired but the time as recorded should agree with the time clocks for time, and when extended the aggregate totals should agree with the payroll sheets and actual wages paid.

When piece work and bonus plans are in operation, inspection reports and general supervision by the foreman probably by filing of independent production reports will be essential. But even where hourly rates are the basis of remuneration, the superintendent or foreman should at least supervise the workmen's work reports and o.k. them for correctness before the details are used in the cost records.

Similar to material costs, wage costs, and their assembly for cost records, should not only come under the personal supervision of one central authority—usually the time-keeper—but the forms to be used should be carefully designed to require the minimum of effort in listing the essential information required to record detailed costs accurately.

While securing material and labor cost information needs, the personal co-operation of the manufacturing departments, the tact and ingenuity of the cost recording installer is taxed to capacity in endeavouring to assure those affected that the need of obtaining such details on the reports are no reflection on their ability and workmanship. The matter of deciding on the method of assembling the total of, and then distributing and apportioning the details of overhead charges must be decided by the Cost Accountant himself.

Various methods of distributing overhead costs have been suggested, and the method to be used should only be decided upon after discussing with the principals of the business, factors which tend to increase or decrease expenses and, of course, careful analysis of previous years' expenses and operations. In some companies operating various processes and departments, it may be necessary to have a number of overhead distribution methods applied.

Assuming all the preliminaries have been completed—the material recording forms decided upon and operating, the recording of productive and indirect labor details and forms satisfactorily functioning, overhead cost distribution taken care of by direct labor percentage or machine hours, the recording of these details accurately, quickly, and effectively is the next essential.

If a process cost system is installed where one product is being manufactured—say lumber—but where several processes are necessary to complete the articles for sale, it is obvious that process sheets are necessary to complete the articles for sale, it is obvious that process sheets or cost ledger sheets would be provided for each section of the factory and from the details received from the mill or factory the details of each department's daily production costs would be recorded.

If a job-order factory, the cost ledger would actually be a subsidiary of the Work in Progress Account, and would have a separate cost sheet for every order. The daily totals of labor, material and overhead would be recorded in detail against individual jobs from the individual time cards and material used cards, with overhead costs added on some predetermined

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basis, making the aggregate totals of the individual job cost-sheets the actual cost of the work in progress from day to day. As each job is completed, some systematic method of transferring the total job costs should be carried out removing the totals from Work and Progress, to Cost of Sales, finished stock, etc., whichever applies.

As speed with accurate details is most essential, a periodic synopsis of the actual state of affairs should be obtainable at least once per month.

A recapitulation of all cost sheets would be the basis of not only showing the management an excellent picture of the month's operations as applied to each job, but the totals of such analysis sheets would be the basis of monthly adjustments of accounts handled by journal entry.

Such sheets could be designed to suit the individual requirements of each business and might list in the 1st column—Work in Progress at the first of the month for each job, next could be labor charged to each job for the month, then material, then overhead charges which could be added across to a total column. On the opposite side of the sheet would be the distribution of each job—first might be Work in Progress at the end of the month (incompleted jobs), next, jobs chargeable to stock (much as finished parts for sale), next, Cost of Sales (completed jobs), then total columns. Naturally the two totals must agree to be in balance. The figures of each column would also be added and totalled across, the total labor balancing with the payroll figures, the total material column with an independent total report of withdrawals of raw materials—supplied by the storekeeper—the total of finished goods for stock should also compare with the storekeeper's report of goods received—and the Cost of Sales should also be proved.

These totals should be journalized so that the Work in Progress Account in the General Ledger would agree with the total of the Work in Progress column at the month end.

From these figures monthly Profit and Loss statements can be drawn up adjusting, of course, the estimated Overhead with the actual Overhead costs.

Later the individual cost sheets could be utilized in many ways, often as the basis of future selling prices, wage plan adjustments, and other uses, depending on the business.

Unquestionably an efficient Cost System is being constantly improved, new uses discovered for the detailed information, all of which should give the management the facts where, how, and when losses are sustained and profits have resulted. If so, the Cost System has given what was expected and it is obvious that the management will seek to increase the sale of profitable articles and discard the unprofitable ones.

## CONCLUSION

For the Cost Accountant the crux of cost finding is in the determination and measurement of various indirect costs entering into the final cost of his product. Complex though the solution of this problem may be, the purposes of cost finding systems are more comprehensive. Stated in detail, cost systems are designed for the following purposes:

1. To fix prices at a profitable margin.

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2. To check costs in the process of production.
3. To spot unfavorable cost trends and to provide a means for analyzing causes.
4. To standardize products, processes and methods.
5. To provide common units for comparing cost components.
6. To evaluate and control inventory.
7. To establish performance objectives for each operation and departments.
9. To promote integrated planning and scheduling of operations.

Although all cost finding methods fulfill some of these purposes, the standard cost method is regarded as encompassing all of them.

The installation of a cost finding system cannot be treated mechanically. When factories produce work on specific order of customers, this procedure makes the job order system suited to the factory's cost finding needs. Numerous variations in forms and methods are possible. For each the problem is one of tailoring a system to suit the special character of his plan.

It is obvious that a Cost Accountant should have more than two eyes, he should have six I's—Intelligence, Ingenuity, Insight, Impartiality, Information, and Industry. With these he will eventually become INDISPENSIBLE.

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## The Roll of the Cost and Industrial Accountant in Post-War Planning

An Address by H. M. Hetherington, R.I.A., Dominion President Canadian Society of Cost Accountants and Industrial Engineers, Before Various Chapters.

Probably the subject of my talk as stated is somewhat of a misnomer, because my remarks will be directed to outlining some of the factors which should be borne in mind in post-war planning, whether that planning be done by the General Manager, the Board of Directors, or any other person or group of persons. However, I will endeavour to deal with those problems which would be the responsibility of the Comptroller or the Cost Accountant or Industrial Accountant. Manufacturing and the merchandising of the manufactured product will be the field for discussion.

Any planning to-day is made many times more difficult because of Government restrictions and control. We freely grant that many of these controls are necessary and most essential to the winning of the war, while others are considered foolish and unnecessary—but they are the laws of our land and as such must be adhered to by all law-abiding citizens and corporations.

Let us set out some of these controls so that we will have them in mind:



## THE ROLE OF THE INDUSTRIAL AND COST ACCOUNTANT IN POST-WAR PLANNING

### Government Restrictions and Controls

1. Control of the supply of many raw materials and the articles made therefrom.
  2. Restriction on Foreign Exchange for the purchase, in foreign countries, of Materials and Equipment.
  3. Restrictions on the movement of labour, especially in skilled and specialized help.
  4. Control of all wage and salary rates.
  5. Complete rationing on certain lines and definite allocations and restrictions on other lines.
  6. Restrictions on deliveries and services.
  7. Control of all selling prices on civilian goods and on Governmental purchases through limited profit percentages and government audit.
  8. Control of capital expenditures on present business, and control over opening of new business and restriction on lines which can be made or handled.
  9. Limitation on net profits with consequent limitation on payments of dividends through the operation of Profits and Personal Income Taxes.
- After examining the foregoing list there would appear to be little freedom left for the business man and his planning.

But these are wartime restrictions and we are considering post-war plans. The only questions is—To what extent will these restrictions be lifted and when? I think that we must have not only one programme but many, based on different possibilities. Only in this way can we face the future with confidence.

I might say that in our organization we have a post-war planning committee, which has been meeting regularly for nearly nine months, and all divisions of the business are represented, and I think we are getting somewhere, too. Sometimes progress seems very slow and plans decided upon have to be abandoned, but a lot of ground work has been done already, and what is equally important, there is the good moral effect that we think in terms of the future as well as of the present.

### What Products to Make and When

The first and the most important step in post-war planning is to decide what products or lines should be manufactured and to what class of trade they should be sold. These divide into two groups—firstly, lines made previously, and, secondly, new lines.

There have been so many changes in the economic situation in this country and in the world at large that products which had a large market at profitable prices before the war may now have become reduced in potential volume or otherwise unprofitable. On the other hand, products which were produced in limited volume and were none too profitable five years ago may be the lines push in the post-war period.

Sales and Factory research should be done for new lines as well as present lines. Particularly should we consider items previously or partially developed and rejected. Perhaps the situation has changed now and a lot of development work done previously may be utilized. It seems to me that lines which are of a novelty or personal comfort type will, because of the

## COST AND MANAGEMENT

present rationing on these items, be in great demand—if, as and when the restrictions are lifted.

Where raw materials and supplies have been restricted and the volume of production has been limited, the big question is "What shall we make first." The plant men will want to make those lines which give least production difficulties; the Sales Department will want to sell those items which put them in the best sales position—but the products which should be produced first and must be produced first—subject, of course, to Government restrictions—are those which put the Company in the best profit position, currently and for the future. Who is in the best position to instruct Management in this regard? I state emphatically that this is the job of the cost and industrial accountant and he must be prepared to stand by his guns and defend his position, backed by good sound common sense cost regulations.

### Raw Materials

Here we will think of two industries particularly—Metal processing and rubber.

Since 1939 the production of metals has increased immensely through private enterprise and by Government assistance, both directly and indirectly. For instance, the production of aluminum alone has increased many times and should be as cheap as dirt after the war. Also new alloys and new processes have been developed, which have given better results and have in many instances reduced costs. Many types of fibre are being used extensively in place of metals for machine work.

In the Rubber industry, we have the synthetics just recently developed. For certain uses some of these are proving far superior to the natural product. (Some, of course, are not). Before the war is over a great many "bugs" which are now giving trouble in the processing synthetics will have been ironed out. Within a few months the production of synthetic Rubber in Canada will be enormous, in a plant financed by our Government at well over 50 million dollars. Will the Government consider it in the best interest of the Canadian people to close its plant as soon after hostilities cease as the raw product is available and allow free imports into Canada of crude rubber from other countries,—or will the Government say—We must keep this plant running and restrict imports on all types of crude rubber except those for which synthetic cannot be substituted economically?

### Materials

Then for both the metals field and the rubber field we have the advent of a comparatively new material which is now being used for many, many purposes. I refer to plastics. There is a very large financial investment in the manufacture of this material, which is being used in place of metals and rubber while they are in restricted supply. We cannot expect these financial interests to sit back and see their market vanish after the war. Will plastics soon replace metals in car bodies, etc., as predicted? Will pipe be made from plastic in future? Will rubber continue to be replaced to any great extent by this material?

You don't know, and I don't know.

## THE ROLE OF THE INDUSTRIAL AND COST ACCOUNTANT IN POST-WAR PLANNING

But the Company which is really planning for post-war activities will do advance development work to the end that, if their regular peace time lines are invaded by products produced from new materials, either that Company will be in a position to manufacture from the new materials or else it will have developed new lines to replace those so lost. To be specific—We in the rubber industry should make certain that our development work is right up to the minute on both crude rubber and synthetic rubber, and also on plastics or any other like material—also we must have relative product costs based on manufacture from these different materials and calculated on present market prices, and with the assistance of a crystal ball perhaps.

### Equipment

Does your plant look the same as before the war? If yours does, then probably the five next to you do not. In thousands of plants great expansion has occurred, to an extent almost inconceivable five years ago. But in most cases, plant additions are attached to or are adjacent to pre-war factories. Your new equipment may be of a special nature or of a different type, but is most probably of a reasonably similar nature.

Of course I realize that in your application to the War Contracts Depreciation Board you will have convinced yourself, and, I hope, convinced the Board, that this equipment would most likely have no post-war value and most probably would be a bill of expense to you through extra watching, maintenance, taxes, etc. Some of you may have even gone so far as to have calculated your demolition costs in case you scrapped these plants and machines.

Then there is the equipment which may have been supplied to your plants under Federal Capital Assistance. The Department of Munitions and Supply state that this equipment is definitely theirs and that they will remove it after the war or otherwise dispose of it as they see fit. But moving costs are high and selling prices will be most awfully low on this surplus equipment, so I think that most any reasonable offer to purchase by firms where this equipment is now installed would be given consideration by the Government.

Well, I can assure you, that neither your Board of Directors nor the Income Tax Department either, are going to have any objection if your planning committee evolves a programme to keep this equipment busy on civilian requirements when war contracts cease.

But this will require a 3-way plug—

- plugging by your Factory Managers.
- plugging by your Sales Department.
- plugging by your Cost Department.

Near the end of my talk, I will touch on a very contentious subject—the matter of depreciation on capital items on which special depreciation has been granted either partially or fully.

### Labour and Labour Rates

What will be the labour situation after the war? This is a big factor in our planning programme. We hope it will be much better than it is to-day.

## COST AND MANAGEMENT

How many of your organization are in the armed forces? In our organization the relationship is more than one for every three working, and practically all are voluntary enlistments. We must plan to give these people re-employment. We have taken the position that these people are still our employees. Their service in the armed forces constitute service with the Company for seniority and benefits. We have agreed that to the best of our ability we will give them employment when they return. We must plan to do this 100% if possible, and moreover we must plan to absorb them without any serious lay-off for our present employees. How we will succeed is uncertain, but we certainly have hopes.

What type of employee will those who return from the armed forces be? To my way of thinking, they will be of a most superior type. Many are officers, N.C.O.'s and skilled tradesmen. They will have had experience in the handling and training of men. Many will have had the best technical training that public money can buy. They will have developed from the boys and girls which they were when they enlisted, to mature men and women with a broad outlook.

These men and women will have served their country well. Industry has its obligation to them, but in addition it will have the rare opportunity of instilling into its organizations the cream of young manhood and womanhood with the finest of training and experience. The firm which is doing sound post-war planning will take full advantage of this situation.

**What of Labour Rates**

The answer is, I think—what is the possibility of reduction in cost of living. The two, by government regulations, are being tied in together.

If it were not for the execution of war contracts and the consequent lowering of overhead rates, how many firms would be able to maintain for long the ceiling prices set in the basic period September and October 1941. After the war when many firms will be reduced, at least temporarily, to less profits than their standard profits, the Wartime Prices and Trade Board will be deluged with applications for increased selling prices or alternatively reduced labour rates. Public opinion will be against both and the business man may become the ham in the sandwich—unless he is smart enough to have his post-war planning to the point where he can quickly change from cancelled war contracts to civilian goods which are in short supply.

The Government may find it necessary to make some adjustments upward in selling prices. The early bird sometimes gets the worm. This may be true in respect of price increases. The cost and industrial accountant can make a real contribution to his firm in the transitional period following the war by having complete and up to date cost figures to show the increases necessary in selling prices and by assisting in the presentation of the requests for such increases.

### **Packing and Product**

Now is the time for post-war planning on the revamping of lines, the development of new post-war lines, setting of new quality standards, improving packings and put-ups and indeed re-organizing merchandising plans if necessary. Those who miss this opportunity will regret it later. The

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Accountant is one of the men who should be head over heels in this work along with others. He can make prestige and promotion for himself if he pushes the job to actual results.

### **Deliveries and Service**

Our wartime controls have done a splendid job in one respect at least. I refer to the cutting down of super-service. You remember the slogans—"Open 24 hours a day—We never sleep", "Our driver will call morning, noon and night." Have we suffered since restriction? A few fine fat stomachs may have been reduced by the odd walk to the drug store—but that is all. Your accountants should be able to produce figures to indicate the savings made in reduction of service costs. Your Sales Departments may make wry faces at these figures, but the Management will be all smiles—and Management sets your salary. Reasonable service only should be a keynote of post-war planning.

### **Budgeting for Post-War Periods**

#### **Profits**

All budgeting is to a certain end—over-all profit position. I think that a firm's target profit should not be its experience in the last year or so but should be about standard profits plus one-sixth, which on the present tax rates, leaves the company with 70% of standard profits (i.e. the average of 4 years prior to the war). To expect more would be very optimistic; to shoot for less would be a backward plan. Of course, if new capital is added, the standard profits are increased proportionate to the added capital and target profit would be advanced accordingly.

#### **Overhead Charges**

Careful study must be given to what level overhead charges should reach in the post-war period. A careful analysis of present costs by individual item will most likely indicate that many items are very high at present. Some of these will be—

- Boiler Room and Steam Costs
- Civic Taxes on any increase in plant.
- Administrative and Supervisory salaries and wages both as to rates and number of employees.

New services may have been added since the outbreak of the war, such as extra watchmen, factory elevator operators, policemen, guides, raw materials tracers, production follow up men, etc.

Questions we must answer—

- Can these amounts be absorbed in post-war civilian business.
- Are all these services entirely essential or can they be eliminated without loss of efficiency.
- If certain duties can be eliminated or reduced, can the persons performing these duties be absorbed in productive work.

Competition will be keen and your budgeting must take this into consideration. I feel that all frills and trimmings will have to come out and that absolutely necessary expenses only can be allowed. In speaking of frills, I am not referring to put-up and merchandising plans. These may be necessary from a competitive angle.

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You must budget sufficient total production to produce your target profit. Your sales Department must be given these production figures so that it may make plans to produce Sales, or failing the Sales Department's ability to see potential markets for such production, then the accountant must take another crack at reducing that overhead to a figure which can be absorbed. If price ceilings continue the greater will be the volume required to achieve the target profit.

### Calculation of Costs and Selling Prices

(I have evaded the issue long enough, so here goes).

Materials and Labour, of course, must be figured at prevailing prices and rates. Export costs must make full allowance for drawbacks and refunds. However, a great deal of thought and consideration must be given to the basic principles and apply them. Any over-all percentages will not be good enough. We must decide whether or not our present method of applying overhead is the correct one. All items of overhead need not be applied in the same manner.

Treasury-Cost Accounting has never set down any standard method for the application of overhead. What is a good method in one plant may not be fair in another. The auditors have allowed contractors to apply overhead in their own way and have only made changes where the fundamental principles were wrong.

### What Are Some of These Fundamental Principles Applying and Post-War Cost Calculating?

In post-war planning, for domestic quotations it seems to me that variable and semi-variable overhead costs should be assessed against the volume required to produce the target profit. As to fixed charges and depreciation, I think these should be applied on a normal full plant volume of say 48 hours per week. Depreciation should be figured as **Actual** depreciation whether the amount to be written off in the books of the company is more or less than actual. I firmly believe product costs should include actual depreciation, on the basis of fair valuation, on capital items on which special war depreciation has been allowed, and on items which may be purchased from the Government after the war at low cost. Actual depreciation is that amount of actual value taken out of an asset in a given period of time by the elements of nature and by operation. The accountant must decide what this amount represents in dollars, but a rough guess might be 50% to 75% of the rates allowed for income tax purposes. The place where if necessary, you would take into consideration in product costs the fact that full depreciation has already been written off in the books, would be as a special calculation in the margin of profit. But such a calculation would be in plain sight. By this method unfair competition might be met but with full knowledge of the profit position.

### Figuring for Export

Here we must remember that we are in world competition against labour rates which may be much lower than ours. Volume production and economical methods must offset differences in labour rates. I feel certain that those firms who, prior to the war, enjoyed preference in exporting to the United Kingdom and other British Commonwealth countries,

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must recognize that such preferences will be greatly reduced if not entirely eliminated. Therefore I feel that overhead calculated in selling prices can include little more than actual outlay. Indirect labour, for instance, should be figured as the percentage which applies on peak production. Power and Steam should likewise be the additional cost only on the additional volume. Fixed charges must be calculated in relation to actual expenditures. Depreciation should not be figured on equipment which has already been written off the books. Other countries too have had Government assistance and will be just as anxious for business as we are. In export as in domestic prices, our margin of profit is the sliding scale and we must be careful to get what the market will bear—no more and no less.

Well, accountants, are you ready for the job? There is plenty of work to be done. If we, as Canadians do sound post-war planning and then properly execute those plans, we need have no fear for the industrial future of Canada. I am sure the cost and industrial accountants will do their share and more in this great post-war programme.

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## NOTICE OF ANNUAL MEETING

TAKE NOTICE THAT THE ANNUAL MEETING OF THE CANADIAN SOCIETY OF COST ACCOUNTANTS AND INDUSTRIAL ENGINEERS WILL BE HELD AT THE CHATEAU FRONTENAC, QUEBEC, P.Q., ON FRIDAY, JUNE 30th, 1944, at 7.30 P.M. FOR THE FOLLOWING PURPOSES:—

1. TO RECEIVE AND CONSIDER THE REPORT OF THE PRESIDENT AND DIRECTORS.
2. TO RECEIVE AND CONSIDER THE REPORT OF THE SECRETARY-MANAGER.
3. TO RECEIVE AND CONSIDER THE FINANCIAL STATEMENT AND REPORT OF THE AUDITORS.
4. TO RECEIVE AND CONSIDER THE REPORT OF THE EDUCATIONAL COMMITTEE.
5. TO CONSIDER AMENDMENTS TO BY-LAWS.
6. TO TRANSACT SUCH OTHER BUSINESS AS MAY PROPERLY COME BEFORE THE MEETING.

(Signed) R. S. M. AUSMAN,  
Hon. Secretary.

# IDEAS

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**IDEA** Make sure that operators are taking full advantage of figuring short-cuts, and that they are using all the time-saving features of their machines.

**IDEA** Locate and eliminate causes of bottlenecks or idle machine minutes by rearranging machines, duties or the flow of work to the machines.

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